

Art Unit: 2454

1. Claims 1-2, 4-7, 11-12, 15-16, 18 and 20-26 are allowed.

2. **PLEASE NOTE: AN AUTHORIZATION FOR THE DIRECTOR TO CHARGE THE REQUIRED FEE(S), FOR THE INDEPENDENT CLAIM 16 AND THE NEWLY ADDED DEPENDENT CLAIMS 24-26 TO THE DEPOSIT ACCOUNT NUMBER (50-1652) WAS GRANTED BY APPLICANT.**

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview (408-399-5608) with Cindy Kaplan on May 06, 2010.

**IN THE TITLE:** The title has been amended in the following manner:

- **TITLE:** --ESTIMATING TRAFFIC VALUES OR INTERVALS FOR NETWORK TOPOLOGY AND NETWORK BEHAVIOUR --

**IN THE CLAIM:** The claims have been amended as follows:

4. **Claims 10 and 17 cancel**

**Regarding claim 1: (currently amended):** A method of estimating traffic values or intervals in a communications network, the network comprising a plurality of nodes being interconnected by links, the method comprising:

obtaining traffic data through said nodes or links as input data comprising traffic measurements for said links obtained from one or more of the nodes in the network;

obtaining network data relating to ~~the~~ a network topology and network behaviour, said network data comprising end-to-end paths in the network;

estimating an effect of a modification of said communications network or its behaviour by calculating traffic information between a selected first and a selected second node of said network using said input data;

repeating estimating the effect of a modification for different pairs of said first and second nodes corresponding to different modifications;

selecting, according to predefined criteria, one or more candidates for modifying said communications network corresponding to one or more of said modifications; and

calculating an analysis of traffic values or traffic intervals for one or more of *the* selected candidates.

**Regarding claim 5 (currently amended):** A method according to claim 1, further comprising ~~the step of~~ correcting said input traffic data if inconsistencies are detected.

**Regarding claim 11 (currently amended):** A method according to claim 10 ~~1~~, wherein said traffic values or intervals are calculated using a traffic flow model being based on:

- (a) traffic data measurements through said nodes and links as input data; and
- (b) a plurality of constraints describing network topology and behaviour.

**Regarding claim 12** (currently amended): A method of calculating traffic values or intervals in a communications network, the communications network comprising a plurality of nodes, the nodes being connected to one another by links, the method of comprising:

calculating a cumulated traffic flow between a first and second of said nodes in a traffic flow model of the communications network using linear constraints;

said traffic flow model being based on:

- (a) traffic data measurements through said nodes and links as input data; and
- (b) a plurality of constraints describing the network topology and behaviour, said network topology comprising end-to-end paths in the network;

correcting said input data if inconsistencies are detected, wherein correcting comprises using said traffic data measurements and said constraints; and

estimating the effect of a modification of the communications network or its behaviour using said traffic flow model, wherein said modification of said network or network behaviour comprises one or more of: a modification of the network topology, a modified routing algorithm parameter, a modified traffic engineering constraint, or a modified traffic load.

**Regarding claim 15** (currently mended): A method of modifying a communications network, the network comprising a plurality of nodes being interconnected by links, the method comprising:

(a) obtaining traffic data through said nodes or links as input data comprising traffic measurements for said links obtained from one or more of the nodes of the network;

(b) obtaining network data relating to the network topology and network behaviour, said network data comprising end-to-end paths in the network;

(c) automatically selecting promising candidates for a network modification by calculating a cumulated flow using said traffic and network data, wherein the candidates are selected according to predefined selection criteria;

calculating an analysis of traffic values or traffic intervals for one or more of the selected candidates; and

- (d) estimating the effect of said network modification.

**Regarding claim 16** (currently amended): An apparatus ~~for calculating traffic values in a communications network, comprising a network management system comprising: adapted to perform the method of claim 15~~

a processor for:

obtaining traffic data through said nodes or links as input data comprising traffic measurements for said links obtained from one or more of the nodes in the network;

obtaining network data relating to a network topology and network behaviour, said network data comprising end-to-end paths in the network;

estimating an effect of a modification of said communications network or its behaviour by calculating traffic information between a selected first and a selected second node of said network using said input data;

repeating estimating the effect of a modification for different pairs of said first and second nodes corresponding to different modifications;

selecting, according to predefined criteria, one or more candidates for modifying said communications network corresponding to one or more of said modifications; and

calculating: an analysis of traffic values or traffic intervals for one or more of the selected candidates; and

memory for storing said traffic data and said network data.

**Regarding claim 18** (currently amended): A computer-readable ~~non-transitory~~ storage medium encoded with a computer program for modifying a communications network, the network comprising a plurality of nodes being interconnected by links when operated in a computer system; the computer program comprising:

code for obtaining traffic data through said nodes or links as input data comprising traffic measurements for said links obtained from one or more of the nodes in the network;

code for obtaining network data relating to a network topology and network behaviour, said network data comprising end-to-end paths in the network;

code for automatically selecting promising candidates for a network modification by calculating a cumulated flow using said traffic and network data, wherein the candidates are selected according to predefined selection criteria;

code for calculating an analysis of traffic values or traffic intervals for one or more of the selected candidates; and

code for estimating the effect of said network modification.

**Regarding claim 24 (new):** The apparatus of claim 16 wherein said modification of said network or network behaviour comprises one or more of: a modification of the network topology, a modified routing algorithm parameter, a modified traffic engineering constraint or a modified traffic load.

**Regarding claim 25 (new):** The apparatus of claim 16 wherein said traffic information is calculated using linear constraints in a traffic flow model.

**Regarding claim 26 (new):** The apparatus of claim 16 wherein said traffic values or intervals are calculated using a traffic flow model being based on:

traffic data measurements through said nodes and links as input data; and  
a plurality of constraints describing network topology and behaviour.

## Reasons for Allowance

5. The following is an Examiner's statement for reasons for allowance:

Claims 1-2, 4-7, 11-12, 15-16, 18 and 20-26 are considered allowable since when reading the claims in light of the specification, as per MPEP §2111.01 or *Toro Co. v. White Consolidated Industries Inc.*, 199 F.3d 1295, 1301, 53 USPQ2d 1065, 1069 (Fed. Cir. 1999) no references of record alone or in combination with another reference disclose or suggest the combination including, at least the limitations specified in the independent claims, specifically ... estimating the effect of a modification of said communications network or its behaviour by calculating traffic information between a selected first and a selected second node of said network using said input data ... repeating estimating the effect of a modification for different pairs of said first and second nodes corresponding to different modifications ... selecting, according to predefined criteria, one or more candidates for modifying said communications network corresponding to one or more of said modifications; and ... calculating an analysis of traffic values or traffic intervals for one or more of *the* selected candidates, as disclosed in independent claim 1, 12, 15, 16 and 18 of the instant application (support for the above limitation can be found, for example, at pages 7-20, of the specification of the instant application).

6. When taken in context the claim(s) as a whole was/were not uncovered in the prior art i.e., the dependent claims are allowed as they depend upon an allowable independent claim.

7. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments regarding Statement of Reasons for Allowance."

## **Correspondence Information**

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARK O. AFOLABI whose telephone number is (571) 270-5627. The examiner can normally be reached on Monday-Friday between (8:30 am to 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NATHAN FLYNN can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M.O.A/

MARK O. AFOLABI

Examiner Art Unit 2454

/NATHAN FLYNN/

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